

II. REMARKS

United States Serial No. 10/524,466, was filed on November 14, 2005. In view of the remarks set forth herein, Applicants respectfully request reconsideration and allowance of claims 1-18.

35 U.S.C. §§112 and 132 Rejections

The Office Action mailed October 30, 2006 rejected Applicants' amendment adding to the specification after paragraph [0075] under 35 U.S.C. §§112 and 132. The Office Action alleges that the amendment is new matter. Applicants respectfully traverse.

An application as filed must be complete in itself in order to comply with 35 U.S.C. §112. Material nevertheless may be incorporated by reference, *Ex parte Schwarze*, 151 USPQ 426 (Bd. App. 1966). An application for a patent when filed may incorporate "essential material" by reference to (1) a U.S. patent, (2) a U.S. patent application publication, or (3) a pending U.S. application. MPEP §608.01(p).

"The filing date of any application wherein essential material is improperly incorporated by reference to a foreign application or patent or to a publication will not be affected because of the reference. In such a case, the applicant will be required to amend the specification to include the material incorporated by reference." MPEP §608.01(p).

The present application is a 35 U.S.C. 371 national stage filing of PCT/EP2002/010045, filed in the European Patent Office. Inadvertently, Applicants improperly incorporated by reference the foreign publication WO 00/77058, which designated the United States but was not published in the English language as required by 35 U.S.C. 102(e). Applicants' amendment after paragraph [0075] merely included material incorporated by reference to WO 00/77058. Accordingly, the amendment does not include new matter. Applicants submit that the amendment was proper under MPEP §608.01(p) and filed in accordance with 37 CFR §1.57. Applicants respectfully request that the rejections

under 35 U.S.C. §§112 and 132 be withdrawn, and that the amendment to the specification of Response A be entered. A copy of Response A is attached hereto.

35 U.S.C. §103 Rejection

Claims 1-18 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,567,236 ("Schapira"), or 3,964,921 ("Persinski '921"), or 4,040,854 (Persinski '854") alone or in view of U.S. Patent No. 5,369,198 ("Albrecht"). Applicants respectfully traverse these rejections.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2143.

Schapira

The first Office Action of May 26, 2006 alleged that Schapira teaches a composition to improve the rheological properties of cement and increase duration of workability and dispersability by adding (1) a stabilizing agent (citric acid), (2) 2-phosphonobutane-1,2,4 tricarboxylic acid, and (3) a superplasticizer. The first Office Action alleged that the use of another known polymer that functions to improve the flowability and dispersability of cement would have been an obvious design choice for one of ordinary skill in the art because they are functionally equivalent.

The second Office Action of October 30, 2006 alleges that Schapira teaches that the composition can be used simultaneously with the superplasticizers of the prior art. The second Office Action further alleges that the Albrecht superplasticizer was prior art and that it would have been an obvious design choice to substitute one known superplasticizer for

another known superplasticizer (Albrecht's) because they are functionally equivalent in cement mixtures.

Schapira does not disclose, suggest or provide motivation for the use of a copolymer based on unsaturated mono- or dicarboxylic acid derivatives and oxyalkylene glycol alkenyl ethers, as in Albrecht. Further, substitution of a copolymer based on unsaturated mono- or dicarboxylic acid derivatives and oxyalkylene glycol alkenyl ethers for Schapira's superplasticizers would render the Schapira composition unsatisfactory for its intended purpose. If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Schapira discloses a composition to improve the rheological properties of cement-based products, namely grouts or slags, concretes and mortars. Column 1, lines 6-8. For these applications, it is important *to not excessively retard the setting of the products and not to affect the times required for dismantling the formwork*. (emphasis added) Column 2, lines 52-54. Schapira teaches that the synergetic effect of the ternary mixture makes it possible to confer a workability to the cement-based products sufficient to enable them to be pumped and/or put into place for at least two hours after their preparation, *without unfavorably influencing the releasing time*. (emphasis added) Column 2, line 64 – Column 3, line 6. "In particular, it is suitable for use in concrete plants; in that case, a delay *of at most 2 hours* may be desired to cover transportation by mixer truck to the site where the concrete is to be put into place; it is also suitable for pumping any cement-based product." (emphasis added) Column 10, lines 54-61.

In contrast, the present application discloses a fluidizing admixture for use in *sprayable* cementitious compositions. Page 1, lines 3-4. The spraying of cementitious compositions such as concrete is regularly used in a number of applications, most notably tunneling. Page 1, lines 6-7. It is a requirement that such compositions be able to be easily conveyed (usually by pumping) to a spray nozzle. Page 1, lines 7-8. The admixture of the present application maintains 45 cm flow after 4 hours (As opposed to the slump desired in

Schapira after two hours, approximately 15-18 cm. See Tables I, II, III, IV, V and VI). Page 9, Table at top.

Early strength development is also very important in spraying concrete applications. Page 10, lines 1-3. The composition of the present application achieves 1 day compressive strength of 17.5 MPa. Page 9, Second Table. Accordingly, the admixture of the present application provides both excellent processing properties (for periods well beyond those required for Schapira) as well as excellent early compressive strength after 24 hours.

The copolymer based on unsaturated mono- or dicarboxylic acid derivatives and oxyalkylene glycol alkenyl ethers cannot be substituted for the Schapira superplasticers. Substitution would render the Schapira composition unsatisfactory for its intended purpose, as it would drastically increase the release time. Therefore, it would not be obvious to one of ordinary skill in the art to simply substitute the copolymer of the present application. In view of the above remarks, Applicants request that the rejection under 35 U.S.C. 103 of claims 1-18 over Schapira alone be withdrawn.

Schapira in view of Albrecht

As set forth above, substitution of the Albrecht superplasticizer for the Schapira superplasticizer would render the Schapira composition unsatisfactory for its intended purpose. Accordingly, Applicants request the withdrawal of the 35 U.S.C. 103 rejection of claims 1-18 over Schapira in view of Albrecht.

Persinski ('854 and '921)

Claims 1-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Persinski ('854 or '921). The first Office Action specifically alleged that claim 3 of Persinski ('854 or '921) teaches the addition of 2-phosphonobutane-1,2,4 tricarboxylic acid as a flow improving and turbulence inducing additive. The second Office Action further alleges that claims 1-18 are unpatentable over Persinski ('845 or '921) alone.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest ***all the claim limitations***. There is no teaching, suggestion, or motivation in Persinski ('854 or '921) to combine 2-phosphonobutane-1,2,4 tricarboxylic with the copolymer as recited in the present claims to a fluidizing admixture or to its method of use. The teachings of the Persinski references could be summarized as using their additive to replace, rather than augment, a copolymer fluidising agent. In view of the above remarks, Applicants request that the rejection under 35 U.S.C. 103 of claims 1-18 over Persinski ('854 or '921) be withdrawn.

Persinski ('854 and '921) in view of Albrecht

The first and second Office Actions allege that claims 1-18 are obvious in view of Persinski ('921 and/or '854) in view of Albrecht.

The first Office Action specifically alleged that it would be an obvious design choice for one of ordinary skill in the art to combine two known dispersing or flow improving additives to cement because both are known for the same function of dispersing or flow improvability.

A statement that modifications of the prior art to meet the claimed invention would have been “ ‘well within the ordinary skill of the art at the time the claimed invention was made’ ” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness ***without some objective reason to combine the teachings*** of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993) (emphasis added).

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the ***prior art*** also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis added).

Neither prior art reference ***suggests the desirability*** of the combination.

The second Office Action also alleges that Albrecht teaches that the superplasticizer may be added to cement as a grinding aid for hydraulic binders. The Office Action then alleges that because grinding aids for hydraulic binders are conventional additives and that Persinski allows for the addition of conventional additives, that it would be obvious to combine Persinski with Albrecht.

The Office Action is applying an improper “obvious to try” rationale in support of an obviousness rejection. “The admonition that ‘obvious to try’ is not the standard under § 103 has been directed mainly at two kinds of error. In some cases, what would have been ‘obvious to try’ would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the *prior art* gave either no indication of *which parameters were critical or no direction as to which of many possible choices is likely to be successful....*” *In re O’Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) (emphasis added). MPEP §2145.

The statement in Persinski that conventional additives may be included in no way provides an indication of what parameters are critical. As thousands of additives can be described as “conventional additives,” Persinski provides absolutely no direction as to which of many possible choices is likely to be successful. One of ordinary skill in the art would not be led to combine either Persinski reference with a reference teaching conventional grinding aids, because the Persinski references are not directed to the use of grinding aids. The Office Action is relying on impermissible hindsight gleaned from Applicants’ disclosure to combine the references in this manner.

Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. §103 of claims 1-18 over Persinski (‘854 or ‘921) in view of Albrecht be withdrawn.

In view of the above remarks, Applicants respectfully request the 35 U.S.C. §§ 112, 132 and 103 rejections be withdrawn, and that the Examiner issue a formal notice of allowability directed to claims 1-18.

Serial No. 10/524,466

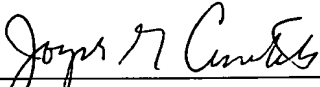
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Response to Final Office Action Mailed 10/30/2006

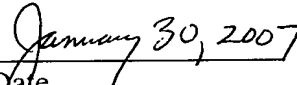
Should the examiner have any questions regarding the remarks set forth herein, Applicants' undersigned attorney would welcome a telephone call.

Respectfully submitted,

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Date



COPY

PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Gerhard ALBRECHT, et al. Docket No. MBZ-0465
Serial No. 10/524,466 Examiner: Paul D. MARCANTONI
Filing Date: November 14, 2005 Art Unit: 1755
Title: FLUIDISING COMPOSITION

Mail Stop Amendment
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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Jean R Barrio
(type or print name of person signing paper)

Jean R Barrio
(signature of person mailing paper)

8-25-2006
(date)

RESPONSE A TO OFFICE ACTION

I. INTRODUCTORY COMMENTS

To the Honorable Commissioner for Patents:

Applicants, through their undersigned attorney, hereby respectfully respond to the Office Action mailed May 26, 2006.

Amendments to the Specification begin on page 2 of this paper.

Remarks begin on page 5 of this paper.

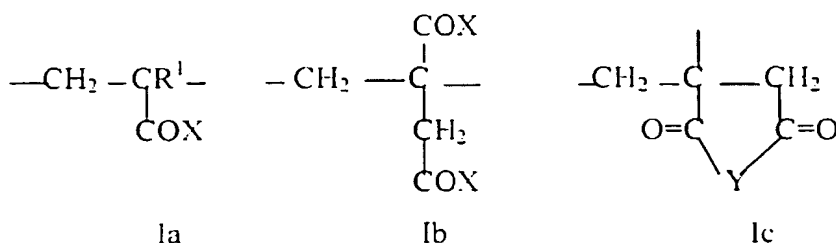
Data Sheets requested by the Examiner accompany this Response.

II. AMENDMENTS TO SPECIFICATION

Please add the following new paragraphs after paragraph [0075]:

This object is achieved according to the invention by copolymers based on radicals of unsaturated monocarboxylic or dicarboxylic acid derivatives and oxyalkylene glycol alkenyl ethers, which are characterized in that they comprise

- a) from 51 to 95 mol% of structural units of the formula Ia and/or Ib and/or Ic



wherein R^1 = hydrogen or an aliphatic hydrocarbon radical having from 1 to

20 carbon atoms;

$X = O_a M, -O-(C_m H_{2m} O)_r -R^2, -NH-(C_m H_{2m} O)_n -R^2,$

M = hydrogen, a monovalent or divalent metal cation, an ammonium ion or an organic amine radical,

$a = 1/2$ or 1,

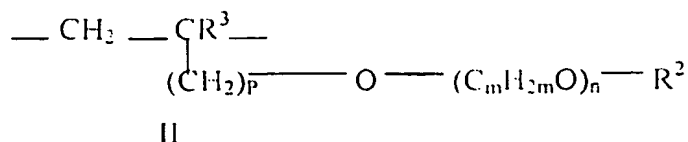
R^2 = hydrogen, an aliphatic hydrocarbon radical having from 1 to 20 carbon atom; a cycloaliphatic hydrocarbon radical having from 5 to 8 carbon atoms, a substitute or unsubstituted aryl radical having from 6 to 14 carbon atoms,

$Y = O, NR^2,$

$m = 2$ to 4 and

$n = 0$ to 200,

- b) from 1 to 48.9 mol% of structural units of the general formula II



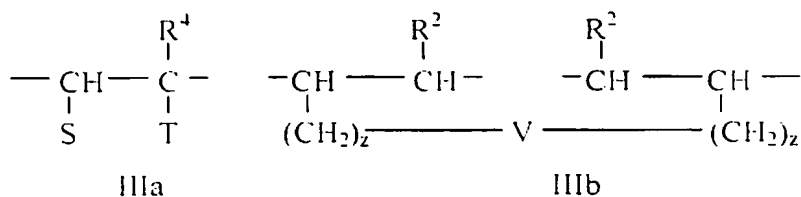
wherein R^3 = is hydrogen or an aliphatic hydrocarbon radical having from 1

to 5 carbon atoms.

p = is from 0 to 3 and

R^2 , m and n are as defined above.

c) from 0.1 to 5 mol% of structural units of the formula IIIa or IIIb



Where

$\text{S} = \text{H}, -\text{COO}_a\text{M}, -\text{COOR}^5$

$\text{T} = \text{U}^1 \text{---} \begin{array}{c} | \\ \text{CH}^3 \end{array} \text{---} (\text{CH}_2\text{---CH}_2\text{---O})_x \text{---} (\text{CH}_2\text{---CH}_2\text{O})_y \text{--- R}^6$

---W---R^7

$\text{---CO---[NH---(CH}_2\text{)]}_5\text{---W---R}^7$

$\text{---CO---O---(CH}_2\text{)}_z\text{---W---R}^7$

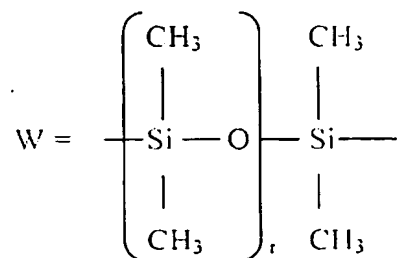
$\text{---(CH}_2\text{)}_r\text{---V---(CH}_2\text{)}_z\text{---CH=CH---R}^2$

---COOR^5 in the case of $\text{S} = -\text{COOR}^5$ or COO_aM

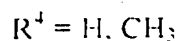
$\text{U}^1 = \text{---CO---NH---}, \text{---O---}, \text{---CH}_2\text{O---}$

$\text{U}^2 = \text{---NH---CO---}, \text{---O---}, \text{---OCH}_2\text{---}$

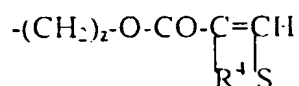
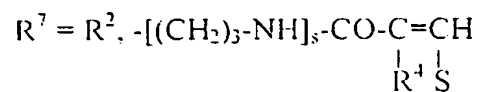
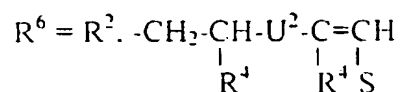
$\text{V} = \text{---O---CO---C}_6\text{H}_4\text{---CO---O---}$ or ---W---



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R^5 = an aliphatic hydrocarbon radical having from 3 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical having from 5 to 8 carbon atoms, an aryl radical having from 6 to 14 carbon atoms.



wherein

$$r = 2 \text{ to } 100$$

$$s = 1, 2$$

$$Z = 0 \text{ to } 4$$

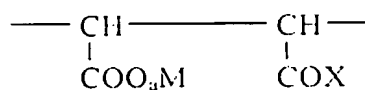
$$x = 1 \text{ to } 150$$

$$y = 0 \text{ to } 15$$

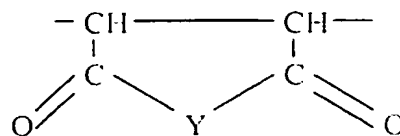
and

d) from 0 to 47.9 mol% of structural units of the general formula IVa and/or

IVb:



IVa



IVb

where a, M, X and Y have the significances hereinabove defined.

It has surprisingly been found that very small amounts of the copolymers of the invention based on unsaturated monocarboxylic or dicarboxylic acid derivatives and oxyalkylene glycol alkenyl ethers added to aqueous building material suspensions give the suspensions excellent processing properties without delaying strength development. It was particularly surprising that a drastic decrease in the water/binder ratio still leads to highly fluid building materials when the copolymers of the invention are added and no segregation of individual constituents of the building material mixture occurs.

II. REMARKS

United States Serial No. 10/524,466, was filed on November 14, 2005. In view of the remarks set forth herein, Applicants respectfully request reconsideration and allowance of claims 1-18.

35 U.S.C. §112, First Paragraph - New Matter

Claims 6-18 have been rejected under the first paragraph of 35 U.S.C. §112, as being new matter. It is specifically alleged that newly added claims 6-18 are not supported by the original disclosure.

Applicants respectfully traverse this rejection. Claims 6, 7, 15, and 16 are expressly supported in the originally filed disclosure at Page 6, Lines 13-14 ("The polymers for use in this invention preferably have a weight-average molecular weight of from 5,000-50,000, preferably from 10,000-40,000.").

The claimed ranges for the proportion of solids recited in claims 8 and 17 are expressly supported at Page 6, Line 29 - Page 7, Line 7 of the originally filed disclosure. (See Table for ranges of solids of components 1, 2 and 3).

Claims 9 and 18 are expressly supported at Page 7, Lines 14-15 ("The admixture is added to a cementitious mixture at a rate of from 0.2-2.0%, preferably from 0.5-0.8% by weight solids on cement.").

Applicants respectfully submit that the use of the transition "comprising" in independent claim 10 does not introduce new matter. The originally filed description expressly discloses that additional ingredients may be included in the fluidizing admixture, in addition to the tricarboxylic acid and copolymer. See Page 7, Lines 17-19, disclosing that "the admixture according to this invention may be used in conjunction with all the conventional admixtures used in the spraying of cementitious compositions...."

Independent claim 10 is further expressly supported at Page 6. Lines 16-20 by the incorporation of International Application WO 00/77058. ("Typical examples of preferred polymers may be prepared by the reaction of methoxypolyethyleneglycol-monovinyl ether, maleic anhydride, amine-terminated ethylene oxide-propylene oxide block copolymer and acrylic acid. Examples of these materials and their preparation may be found in International Application WO 00/77058 the contents of which are incorporated herein by reference.").

WO 00/77058 specifically discloses copolymers "based on radicals of unsaturated monocarboxylic or dicarboxylic acid derivatives and oxyalkylene glycol alkenyl ethers, which are characterized in that they comprise

- (a) from 51 to 95 mol % of structural units of the formula Ia and/or Ib and/or Ic...
- (b) from 1 to 48.9 mol % of structural units of the general formula II...
- (c) from 0.1 to 5 mol % of structural units of the formula IIIa or IIIb...
- (d) from 0 to 47.9 mol [lacuna] of structural units of the general formula IVa and/or IVb..." See WO 00/77058 at Page 4. Line 15 – Page 7. Line 16.

The present application has been amended to include subject matter disclosed in WO 00/77058. The subject matter being inserted is the disclosure originally incorporated by reference, and does not contain any new matter. Applicants submit that the amendment is proper and filed in accordance with 37 CFR §1.57. An English language translation of WO 00/77058 is submitted herewith. The English language translation was obtained from the image file wrapper of USPN 6,777,517 (the national phase filing of WO 00/77058).

Claims 11-14 ultimately depend from claim 10, which does not contain new matter. Therefore, claims 11-14 are also fully supported by the originally filed disclosure.

In view of the above remarks, Applicants respectfully request withdrawal of the 35 U.S.C. §112, first paragraph new matter rejections.

35 U.S.C. §112, First Paragraph - Enablement

Claims 1-18 have been rejected under 35 U.S.C. §112, first paragraph as allegedly failing to comply with the enablement requirement. It is specifically alleged that the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. The Office Action further specifically alleges that the specification would appear to only enable Applicants' invention to one specific polymer (MVA 2453 L/44% ex Degussa).

Applicants respectfully traverse this rejection. "The presence of only one working example should never be the sole reason for rejecting claims as being broader than the enabling disclosure... To make a valid rejection, one must evaluate all the facts and evidence and state why one would not expect to be able to extrapolate that one example across the entire scope of the claims." MPEP §2164.02. [Emphasis Added].

As long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. §112 is satisfied. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970); MPEP §2164.01(b). Failure to disclose other methods by which the claimed invention may be made does not render a claim invalid under 35 U.S.C. §112. *Spectra – Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 3 USPQ 2d 1737, 1743 (Fed. Cir.), cert. denied, 484 U.S. 954 (1987).

Claims 1 and 10 recite "at least one polymer derived from ethylenically – unsaturated mono- or dicarboxylic acids, and characterized in that the polymer..." Applicants disclosed a working example utilizing MVA 2453 L/44% ex Degussa as the copolymer component of the admixture. This copolymer falls within the scope of independent claims 1 and 10. As such, the working example clearly bears a reasonable correlation to the entire scope of the claim, and one skilled in the art would be capable of making or using the invention, by selecting other disclosed copolymers

based on unsaturated or mono- or dicarboxylic acid derivatives and oxyalkylene glycol alkenyl ethers.

Furthermore, the Office Action sets forth no reasons why one skilled in the art would not expect to be able to extrapolate the working example (MVA 2453 L/44%) across the entire scope of the claims, as specifically required by MPEP §2164.04.

A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. §112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. *In re Marzocchi*, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971).

As stated by the Court in *Marzocchi*, "it is incumbent upon the Patent Office, whenever a rejection on this basis [enablement] is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement." *In re Marzocchi*, 439 F.2d at 224, 169 USPQ at 370. This is done by making specific findings of fact, supported by the evidence, and then drawing conclusions based on these findings of fact. MPEP §2164.04.

The Office Action sets forth no specific technical reasons why one would not expect to be able to extrapolate the example across the entire scope of claims 1 and 10, makes no specific findings of fact, and does not indicate why it doubts the truth or accuracy of the disclosure. In view of the above remarks, Applicants respectfully request that the enablement rejection under 35 U.S.C. §112, first paragraph, be withdrawn.

35 U.S.C. §112, Second Paragraph

Claims 1-18 have been rejected under 35 U.S.C. §112, second paragraph, as failing to set forth the subject matter which Applicants regard as their invention. It is specifically alleged that independent claims 1 and 10 are indefinite because it is not clear whether each of structures A, B, C and D are required.

Applicants respectfully traverse this rejection. Claims 1 and 10 recite, in part, the following:

- a) 51-95 mol % of moieties of Formula Ia and/or Ib and/or Ic.
- b) 1-48.9 mol % of moieties of the General Formula II.
- c) 0.1-5 mol % of moieties of Formula IIIa or IIIb.
- d) 0-47.9 mol % of moieties of the General Formula IVa and/or IVb.

As structure D may be zero, it is merely an optional component and not required. Applicants submit that the claim language is clear and unambiguous and, when reading the claims in light of the specification, one having ordinary skill in the art would easily understand that at least one of Ia or Ib or Ic, and at least one of II, and at least one of IIIa or IIIb are required, and that structure D is merely optional. Applicants, therefore, respectfully request that this rejection be withdrawn.

As requested by the Examiner, Applicants have enclosed data sheets for the DEGUSSA and GLENIUM materials.

35 U.S.C. §103 Rejection

Claims 1-18 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,567,236 ("Schapira"), or 3,964,921 ("Persinski '921"), or 4,040,854 ("Persinski '854") alone or in view of U.S. Patent No. 5,369,198 ("Albrecht") and WO 00/77058 A1 ("Albrecht"). Applicants respectfully traverse these rejections.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2143.

Schapira

It is specifically alleged that Schapira teaches the addition of (1) citric acid and (2) 2-phosphonobutane-1,2,4 tricarboxylic acid as stabilizing agents, and (3) the addition of a superplasticizer. The Office Action alleges that the use of another known polymer that functions to improve the flowability and dispersibility of cement would have been an obvious design choice for one of ordinary skill in the art because they are functionally equivalent.

In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on Applicants disclosure or the mere fact that the components at issue are functional or mechanical equivalents. *In re Ruff*, 256 F.2d 590, 118 USPQ 340 (CCPA 1958). "Actual equivalence is not enough to justify refusal of a patent on one member of a group when another member is in the prior art. The equivalence must be disclosed in the prior art or be obvious within the terms of Section 103." *In re Ruff*, 256 F.2d 590 at 599.

There is no disclosure in Schapira of the copolymer of the present application. That is, Schapira does not disclose, suggest or provide motivation for a copolymer based on unsaturated mono- or dicarboxylic acid derivatives and oxyalkylene glycol alkenyl ethers. Therefore, there is no disclosure in Schapira that the copolymer is equivalent to the superplasticizers taught in Schapira. The copolymer would not be an obvious design choice for one of ordinary skill in the art, as Schapira discloses that the use of different superplastizers may result in inferior results, as compared to other superplasticizers.

Schapira teaches that the synergetic effect of a ternary mixture (made up of a superplasticizing agent, a stabilizing agent capable of forming a chelate with the calcium ions of the cement-based product and a polycarboxylic polymer dispersing agent) with respect to slump loss is beyond comparison with the results which can be obtained by any binary combination of the three constituents. Schapira, Column 2, Lines 59 - 67. It allegedly does so without unfavorably influencing the mechanical strength. Schapira, Column 3, Lines 1- 7.

Schapira alleges that the composition satisfies the AFNOR standard 18 333 which relates to superplasticizing adjuvants and which requires, on the part of a superplasticizer, a compressive strength at 24 hours greater than or equal to 85% of that of a control that is free of superplasticizer for the same water/cement ratio. Schapira, Column 10, Lines 47 - 53.

Example 4 of Schapira analyzed the influence of different superplasticizing agents in combination with a polycarboxylic polymer dispersing agent and a chelating stabilizing agent. Column 15, Line 34 - Column 16, Line 35. Table V of Schapira displays the workability and compressive strengths of the compositions after two hours. See Table at Top of Columns 17-18.

Schapira states that "the best results are obtained with superplasticizing agents of PNS and SCM types, which are preferred. The superplasticizing agents of LNS and PSS AM types cause a setting-retarding effect which exerts a negative effect on the compressive strengths at the young age: these agents are less advantageous." Column 17, lines 26-32. These compositions (8, 9 and 10), and even an SCM type (6), did not perform as well (either as a result of slump loss or compressive strength) as the other compositions containing different superplasticizers. See Example 4, Table V, Columns 17 - 18, Tests 1 - 5, 7. As a matter of fact, Tests 9 and 10 failed to satisfy the AFNOR standards (68% and 66%, respectively).

Additionally, those compositions (6, 8, 9 and 10) failed to perform as well with respect to slump loss, as binary compositions. See Example 5, Column 17, Line 37 – Column 19, line 13, Tests 2, 4, 6 and 11.

Even within the Schapira reference, there is a dispute as to the equivalency of the disclosed superplasticizers. It clearly shows that out of 10 different superplasticizers, only six gave satisfactory results. Therefore, it would not be obvious to one of ordinary skill in the art to simply substitute the copolymer of the present application. In view of the above remarks, Applicants submit that claims 1-18 are not rendered obvious by Schapira, and request that the rejection under 35 U.S.C. 103 be withdrawn.

Persinski ('854, '921)

Claims 1-18 are rejected under 35 U.S.C §103(a) as being unpatentable over Persinski ('854 or '921). It is specifically alleged that claim 3 of Persinski ('854 or '921) teaches the addition of 2-phosphonobutane-1,2,4 tricarboxylic acid as a flow improving and turbulence inducing additive. Applicants traverse this rejection.

Persinski '854 merely teaches that the "hydraulic cement may be employed alone in preparing the cementing composition, merely being admixed with water and the flow-property-improving and turbulence-inducing additive, or it may have additionally incorporated there any of a number of conventional cement additives." Persinski '854, Column 5, lines 55 – 60. Examples of these agents include retarders, fluid-loss control agents, weighting components and other conventional additives. Persinski '854, Column 5, Line 60 – Column 6, Line 17. Persinski '921 provides the identical disclosure. Persinski '921, Column 5, Lines 16-46.

There is no teaching, suggestion, or motivation in Persinski ('854 or '921) to combine 2-phosphonobutane-1,2,4 tricarboxylic with either citric acid or the copolymer claimed in the present application. In view of the above remarks, Applicants submit that claims 1-18 are not rendered obvious by Persinski ('854 or

'921). Therefore, Applicants respectfully request that the rejection under 35 U.S.C. §103 be withdrawn.

Schapira or Persinski in view of Albrecht

It is alleged that claims 1-18 are obvious in view of U.S. Patent No. 5,567,236 ("Schapira"), or 3,964,921 ("Persinski '921"), or 4,040,854 ("Persinski '854") in view of U.S. Patent No. 5,369,198 ("Albrecht '198") and WO 00/77058.

It is specifically alleged that the claimed polymer is within the teachings of '198 and WO 00/77058, and that it would have been an obvious design choice for one of ordinary skill in the art to combine two known dispersing or flow improving additives to cement, because both are known for the same function of dispersing or flow improvability.

Applicants respectfully traverse this rejection. There is no teaching, suggestion or motivation to make the claimed combination. "A statement that modifications of the prior art to meet the claimed invention would have been well within the ordinary skill of the art at the time the claimed invention was made because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references." *Ex parte Levengood*, 28 SUPQ2d 1300 (BPAI 1993).

Furthermore, the "teaching or suggestion to make the claim combination and the reasonable expectation of success must both be found in the prior art, not in Applicants' disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Moreover, "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

In re Geiger, 815 F.2d 686, 687. (Fed. Cir. 1987) illustrates this. In *In re Geiger*, an application was directed to a method of inhibiting scale formation on and corrosion of metallic parts in cooling water systems by use of compositions containing (1) a sulfonated styrene/maleic anhydride (SSMA) co-polymer, (2) a water soluble zinc compound, and (3) an organo-phosphorus acid compound or water soluble salt thereof. *In re Geiger*, 815 F.2d 686, 687 (Fed. Cir. 1987).

The application was initially rejected by the Examiner under 35 U.S.C. §103, finding that the claimed subject matter would have been obvious in view of various combinations of references, with reliance upon U.S. Patent No. 4,209,398 (Ii), U.S. Patent No. 4,374,733 (Snyder) and U.S. Patent No. 4,255,259 (Hwa). Id.

"Ii" disclosed a system for the same purpose that could include (1) a copolymer, (2) a water soluble zinc compound, and (3) an organo-phosphorus acid compound. Id. However, there was no teaching of SSMA in "Ii." Id.

"Snyder" disclosed a method for treating cooling water systems prone to scale formation which could include SSMA or a styrene/maleic anhydride (SMA) copolymer. Id.

"Hwa" was directed to a method for treating boiler water systems that were prone to scale formation by addition of a composition comprised of SSMA and an organo-phosphorus acid compound. Id.

Based on the prior art and the fact that each of the three components of the composition used in the claimed method were conventionally employed for treating cooling water systems, the Board of Patent Appeals and Interferences held it would have been obvious to employ these components in combination for their known functions and to optimize the amount of each additive. Id.

The Applicants argued that the PTO's position represented hindsight reconstruction, or, at best, established that it would have been "obvious to try" various

combinations of known scale and corrosion prevention agents, including the combination recited in the appealed claims. Id. at 688.

The Federal Circuit agreed with the Applicants. Id. The court noted that “li” did not suggest the use of SSMA and that although “Snyder” disclosed the use of SSMA, it was for the purpose of showing that it, or one of three other specifically recited copolymers, could be used in combination with yet another polymeric component to prevent scale formation. Id. Finally, “Hwa” provided no suggestion to add a zinc compound to its combination of SSMA and organo-phosphorus acid compounds. Id. Additionally, “Hwa” provided no suggestion that SSMA could be used in cooling water in the manner ascribed to the polymeric component in li. Id.

The Federal Circuit stated that, “at best, in view of these disclosures, one skilled in the art might find it obvious to try various combinations of these known scale and corrosion prevention agents. However, this is not the standard of 35 U.S.C. § 103.” Id. “Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination.” Id. The court reversed on the basis of failure to establish a *prima facie* case of obviousness. Id.

Here, it is alleged that Schapira teaches the addition of (1) citric acid and (2) 2-phosphonobutane-1,2,4 tricarboxylic acid as stabilizing agents, and (3) the addition of a superplasticizer. However, there was no teaching of the copolymer of the present application in Schapira.

Similarly, there is no teaching or suggestion in Persinski ('854 or '921) to combine 2-phosphonobutane-1,2,4 tricarboxylic and/or citric acid with the copolymer of the present application.

Finally, neither Albrecht '198 nor WO 00/77058 teaches, suggests or motivates the combination of the copolymer with 2-phosphonobutane-1,2,4 tricarboxylic and/or citric acid. Neither Albrecht '198 nor WO 00/77058 teaches, suggests or motivates the substitution of the copolymer of the present application in

the compositions of Schapira or Persinski. As a result, the Office Action is utilizing an improper 'obvious to try' rationale in support of an obviousness rejection. See MPEP §2145.

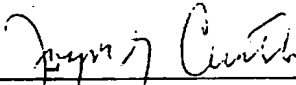
As detailed above, it would not be obvious to one of ordinary skill in the art to substitute the copolymer of either Albrecht '198 or WO 00/77058 for the claimed superplasticizers of Schapira. The test results of Schapira indicate that the use of different superplasticizers may produce unacceptable results.

Accordingly, the proposed combination does not render claims 1-18 obvious. Therefore, Applicants respectfully request that the rejection under 35 U.S.C. §103 be withdrawn.

In view of the above remarks, Applicants respectfully request the 35 U.S.C. §§ 112 and 103 rejections be withdrawn, and that the Examiner issue a formal notice of allowability directed to claims 1-18.

Should the Examiner have any questions regarding the remarks set forth herein, Applicants' undersigned attorney would welcome a telephone call.

Respectfully submitted.



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